United States of America

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

Agenda Item 1.6: : to consider additional allocations for the aeronautical mobile (R) service in parts of the bands between 108 MHz and 6 GHz, in accordance with Resolution **414 (WRC-03)** and, to study current satellite frequency allocations that will support the modernization of civil aviation telecommunication systems, taking into account Resolution **415 (WRC-03)**;

Background Information: This proposal is concerned with Resolution **415**, Secondary Allocations for AMSS (space-to-Earth) in the 11/12 GHz bands.

With ever increasing speed, existing and new communications systems are being based on Internet related protocols and services. Access to these services with sufficient bandwidth is becoming essential for all forms of telecommunications. Communications with aircraft are not exempt from this growing dependence on Internet applications. Aircraft owners and operators are realizing that without this access aeronautical operations will be hindered from gaining the efficiencies and benefits that these types of service offer. Internet usage is fast becoming dependent on broadband connectivity. A demonstrated viable means of providing this connectivity for mobile platforms on an intercontinental basis is through satellite channels.

The availability of this broadband communications capability on board aircraft will promote the efficiency of aircraft operations and provide access to information, such as enhanced weather data, hitherto inaccessible to aircraft in flight.

The ITU-R recognized that the use of the 14.0-14.5 GHz band for Aeronautical Mobile-Satellite Service (AMSS) on a Secondary basis was compatible with current Fixed-Satellite Service (FSS) systems and was supported by studies leading up to WRC-03. Additional studies in the ITU-R also confirmed compatibility with other Services in the 14.0-14.5 GHz range. At WRC-03, the decision was made to expand the secondary MSS allocation in the 14-14.5GHz band to include AMSS (Earth-to-space). This decision has enabled the use of Internet applications by aircrews and passengers.

Related to this decision, there were discussions of a downlink that could be used with this new uplink allocation and it was concluded at the 14th Plenary Meeting that:

1. The downlink (space-to-Earth) bands associated with the secondary mobile-satellite service allocation shall be:

    - In Region 1, 10.7-11.7 GHz and 12.5-12.75 GHz;
    - In Region 2, 10.7-12.2 GHz;
    - In Region 3, 10.7-11.7 GHz and 12.2-12.75 GHz.

2. The use of the downlink (space-to-Earth) bands listed above by the aeronautical mobile-satellite service shall be under the provisions of No. **4.4**.

Studies within the ITU-R assessed compatibility of the usage of the 11/12 GHz downlink band, associated with the 14 GHz uplink band, and found that these downlink signals could co-exist with FSS systems.

The adoption of and equipage of aircraft with a new communication system is expensive and time consuming. In order to protect their investment, aircraft operators would welcome the regulatory certainty brought by an allocation for the downlink frequencies used by these new systems.

Further, to conform to the usual conventions of the Radio Regulations, it is prudent and timely now to augment the existing Fixed-Satellite Service allocations around 11/12 GHz to include a secondary AMSS allocation for the downlink.

Proposal

USA/ /1 MOD

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations

10-11.7 GHz

<table>
<tr><th colspan="3">Allocation to services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>10-10.45
FIXED
MOBILE
RADIOLOCATION
Amateur
5.479</td><td>10-10.45
RADIOLOCATION
Amateur

5.479 5.480</td><td>10-10.45
FIXED
MOBILE
RADIOLOCATION
Amateur
5.479</td></tr>
<tr><td>10.45-10.5</td><td colspan="2">RADIOLOCATION
Amateur
Amateur-satellite
5.481</td></tr>
<tr><td>10.5-10.55
FIXED
MOBILE
Radiolocation</td><td colspan="2">10.5-10.55
FIXED
MOBILE
RADIOLOCATION</td></tr>
<tr><td>10.55-10.6</td><td colspan="2">FIXED
MOBILE except aeronautical mobile
Radiolocation</td></tr>
<tr><td>10.6-10.68</td><td colspan="2">EARTH EXPLORATION-SATELLITE (passive)
FIXED
MOBILE except aeronautical mobile
RADIO ASTRONOMY
SPACE RESEARCH (passive)
Radiolocation
5.149 5.482</td></tr>
</table>

10.68-10.7	EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.483	
10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484 MOBILE except aeronautical mobile Aeronautical mobile-satellite (space-to-Earth) ADD5.XX	**10.7-11.7** FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile Aeronautical mobile-satellite (space-to-Earth) ADD 5.XY	**10.7-11.7** FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile Aeronautical mobile-satellite (space-to-Earth) ADD 5.XZ

11.7-14 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
11.7-12.5 FIXED BROADCASTING BROADCASTING-SATELLITE MOBILE except aeronautical mobile	**11.7-12.1** FIXED 5.486 FIXED-SATELLITE (space-to-Earth) 5.484A Mobile except aeronautical mobile Aeronautical mobile-satellite (space-to-Earth) ADD 5.XY 5.485 5.488	**11.7-12.2** FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE
	12.1-12.2 FIXED-SATELLITE (space-to-Earth) 5.484A Aeronautical mobile-satellite (space-to-Earth) ADD 5.XY 5.485 5.488 5.489	5.487 5.487A 5.492
5.487 5.487A 5.492	**12.2-12.7** FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE	**12.2-12.5** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING Aeronautical mobile-satellite (space-to-Earth) ADD 5.XZ 5.484A 5.487
12.5-12.75	5.487A 5.488 5.490 5.492	**12.5-12.75**

FIXED-SATELLITE (space-to-Earth) 5.484A (Earth-to-space) Aeronautical mobile-satellite (space-to-Earth) ADD 5.XX 5.494 5.495 5.496	**12.7-12.75** FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile	FIXED FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE except aeronautical mobile BROADCASTING-SATELLITE 5.493
12.75-13.25	FIXED FIXED-SATELLITE (Earth-to-space) 5.441 MOBILE Space research (deep space) (space-to-Earth)	
13.25-13.4	EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) 5.498A 5.499	
13.4-13.75	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.500 5.501 5.501B	
13.75-14	FIXED-SATELLITE (Earth-to-space) 5.484A RADIOLOCATION Earth exploration-satellite Standard frequency and time signal-satellite (Earth-to-space) Space research 5.499 5.500 5.501 5.502 5.503	

Reasons: Under agenda 1.11 at WRC-2003, the secondary allocation at 14-14.5 GHz to the mobile-satellite service (MSS) was extended to include the aeronautical mobile-satellite service (AMSS). Also at WRC-2003, since agenda 1.11 dealt only with the extension of the MSS allocation at 14-14.5 GHz and did not include provisions for a downlink, the 14th Plenary Meeting concluded that the AMSS the downlink bands at 12 GHz shall be used under the provisions of RR **4.4**.

Since WRC-03, there has been rapidly growing global use of the AMSS in the 14-14.5 GHz band. In order to assure the users and providers of these new aeronautical applications of continuing spectrum availability, it is necessary to allocate downlink spectrum, on a secondary basis, corresponding to the existing uplink allocation. Rather than continue to operate the downlink under RR **4.4**, it is more consistent with the structure and the common practice of the Radio Regulations to have an AMSS secondary allocation listed in the Table for the downlink at 12 GHz. Additionally, to show that the AMSS in the 12 GHz band will operate with FSS satellites, there are three new footnotes, one for each Region, to reflect the same relationship between the FSS and AMSS services that is contained in RR **5.504**A for the uplink. This new allocation would, further, provide opportunities for the users of current fixed-satellite service frequency allocations to provide this service.

USA/ /2 ADD

5.XX In Region 1, in the bands 10.95-11.2 GHz, 11.45-11.7 GHz and 12.5-12.75 GHz, space stations in the fixed-satellite service may communicate with aircraft earth stations in the secondary aeronautical mobile-satellite service. The provisions of Nos. **5.29**, **5.30** and **5.31** apply.

Reasons: Reflects regional differences in FSS allocations and is consequential to the reasons given above.

USA/ /3 ADD

5.XY In Region 2, in the bands 10.95-11.2 GHz and 11.45-12.2 GHz, space stations in the fixed-satellite service may communicate with aircraft earth stations in the secondary aeronautical mobile-satellite service. The provisions of Nos. **5.29**, **5.30** and **5.31** apply.

Reasons: Reflects regional differences in FSS allocations and is consequential to the reasons given above.

USA/ /4 ADD

5.XZ In Region 3, in the bands 10.95-11.2 GHz, 11.45-11.7 GHz and 12.2-12.75 GHz, space stations in the fixed-satellite service may communicate with aircraft earth stations in the secondary aeronautical mobile-satellite service. The provisions of Nos. **5.29**, **5.30** and **5.31** apply.

Reasons: Reflects regional differences in FSS allocations and is consequential to the reasons given above.

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